

**Before the Committee on Commerce, Science, and Transportation  
United States Senate**

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# **FAA's Progress and Challenges in Advancing Safety Oversight Initiatives**

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Mr. Chairman and Members of the Committee:

Thank you for inviting me to testify on the Federal Aviation Administration's (FAA) progress on safety oversight initiatives. At the outset, let me state unequivocally that FAA operates the world's safest air transportation system. In addition, FAA has a number of initiatives under way to enhance safety in the National Airspace System (NAS). However, new legislated requirements and the need to improve how the Agency collects and uses safety data have created significant challenges for FAA. Our completed and ongoing work has identified opportunities for FAA to improve its safety oversight.

My testimony today will focus on FAA's (1) need for comprehensive data collection and analysis to enhance the safety of air traffic operations; (2) need to strengthen its risk-based oversight approach for repair stations and manufacturers; and (3) progress and challenges with implementing mandated safety requirements.

## **IN SUMMARY**

Through voluntary safety programs such as the Air Traffic Safety Analysis Program (ATSAP), FAA has taken important steps to collect safety data on air traffic operations, including data on controller and pilot errors that create in-flight and ground collision risks. However, to accurately identify all safety incidents, analyze trends in safety risks, and address their root causes, FAA needs to refine its data collection approach by expanding and enhancing the reliability of its key data sources. FAA faces similar challenges with establishing an effective risk-based oversight system for repair stations and aircraft manufacturers. To target its surveillance to the highest-risk areas, FAA needs to better determine the number of inspectors it needs and where to place them, and ensure risk assessments are performed. Finally, despite commendable progress on implementing key elements of the Airline Safety and FAA Extension Act of 2010,<sup>1</sup> FAA continues to be challenged with meeting provisions for improved pilot training, qualification, and screening requirements, as well as advancing safety initiatives at smaller carriers.

## **A LACK OF INTEGRATED DATA COLLECTION AND ANALYSIS HINDERS FAA'S EFFORTS TO ENHANCE AIR TRAFFIC SAFETY**

Over the past several years, FAA has rolled out numerous initiatives to enhance the safety of air traffic control operations, but significant challenges continue to hinder these efforts. A top priority for FAA is to accurately count and identify trends that contribute to operational errors—events where controllers do not maintain safe separation between aircraft. FAA's ATSAP program—a voluntary, non-punitive system through which controllers can report safety incidents—has the potential to enhance safety, but system improvements are needed before the Agency can realize expected benefits. Other priorities that FAA must continue to address are controller fatigue, runway

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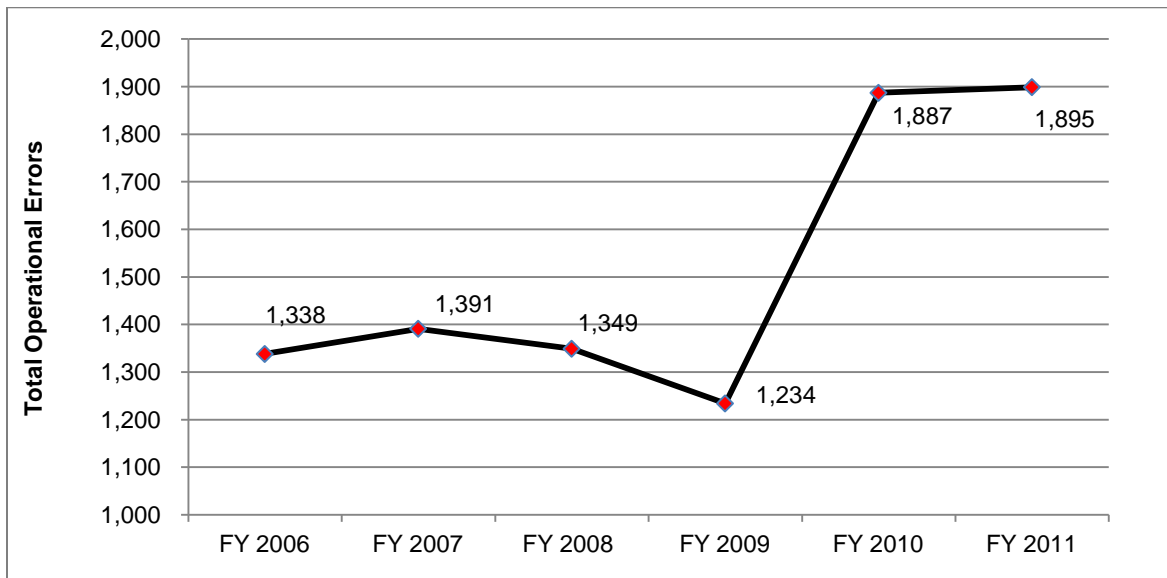
<sup>1</sup> Airline Safety and Federal Aviation Administration Extension Act of 2010, Pub. L. No. 111-216, August 1, 2010.

incursions,<sup>2</sup> and wildlife hazards. Two significant safety-related challenges also remain: (1) FAA’s progress in developing a safety data analysis system to proactively identify risk, and (2) introducing Unmanned Aircraft Systems (UAS) into U.S. airspace.

### **Data Collection and Analysis Enhancements Are Needed To Identify and Mitigate the Root Causes of Separation Losses**

FAA statistics indicate that reported operational errors<sup>3</sup>—when required separation is lost due to a controller error—rose by 53 percent between fiscal years 2009 and 2010 (see figure 1). While total operational errors remained at these levels in 2010 and 2011, the most serious reported errors, those in which a collision was barely avoided, continued to increase, from 37 in fiscal year 2009, to 43 in fiscal year 2010, and 55 in fiscal year 2011. Further, since the beginning of fiscal year 2012, both the total and most serious number of reported operational errors appears to have increased.<sup>4</sup>

**Figure 1. Operational Errors for Fiscal Years 2006 Through 2011**



Source: OIG analysis of FAA data.

However, the reason these increases occurred is unknown. According to FAA, the increases are the result, in part, of its increased use of data in the Traffic Analysis and Review Program (TARP)—an automated system for detecting loss of separation

<sup>2</sup> FAA defines a runway incursion as any incident involving an unauthorized aircraft, vehicle, or person on a runway. Runway incursions are classified into three categories: (1) operational errors (when the actions of a controller cause an incident); (2) pilot deviations (when the actions of a pilot cause an incident); and (3) vehicle/pedestrian deviations (when the actions of a vehicle operator or pedestrian cause an incident). Serious runway incursions are those in which a collision was barely avoided.

<sup>3</sup> As of Jan 30, 2012, FAA no longer uses the term “operational errors” but instead tracks losses of separation as “occurrences.” Occurrences might not be an exact replacement for operational errors. Occurrences may include other types of losses of separation besides operational errors.

<sup>4</sup> We have calculated, based on FAA data, that the total number of operational errors may have increased up to 2,509 for fiscal year 2012, with the most serious errors increasing up to 275, but we are unable to state this is 100 percent accurate due to limitations in FAA data. Specifically, FAA stopped using the term “operational errors” in 2012.

incidents at terminal locations. However, as we reported in February 2013,<sup>5</sup> operational errors at the high altitude en route centers—which have had an automated system for detecting loss of separation incidents in place for years—have also increased from 353 in fiscal year 2009 to 489 in fiscal year 2010, suggesting that the increase in reported errors during this period was linked in part to a rise in actual errors.

In January 2012, FAA issued new policies and procedures for collecting, investigating, and reporting all separation losses. However, their effectiveness is limited by incomplete data and the lack of an accurate baseline on the number of separation losses. At the time of our ATSAP review last year,<sup>6</sup> approximately 50 percent of all ATSAP event reports<sup>7</sup> were classified as “unknown,” meaning they were not included in FAA’s Quality Assurance database when they were reviewed, and therefore may have been excluded.<sup>8</sup> Likewise, as we reported in February, FAA does not analyze and report all separation losses automatically flagged by TARP. Instead, FAA investigates only those losses of separation that are within less than 70 percent of the required separation distance.

### **Significant Improvements to ATSAP Are Needed To Achieve Expected Program Benefits**

FAA implemented ATSAP reporting at all air traffic control facilities in October 2010 and continues to make needed improvements to the program. As of December 31, 2012, more than 58,000 reports have been collected through ATSAP. However, FAA’s methods for analyzing the data may not accurately identify root causes and safety trends. For example, causal factors are reported quarterly under ATSAP using general terms such as “actions or plans poorly executed” or “training in progress during event,” which are too broad to identify root causes and develop specific actions to mitigate them.

We identified other weaknesses in the ATSAP program. Improvements in these areas would enhance the Agency’s ability to identify and address risks through ATSAP. For example:

- FAA has not finalized the process to effectively communicate ATSAP data to air traffic facility managers so that safety improvements can be made at the facility level. By December 31, 2013, FAA plans to deploy a nationwide rollout of a pilot program to provide personnel at FAA facilities and offices access to ATSAP data.

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<sup>5</sup> *FAA’s Efforts To Track and Mitigate Air Traffic Losses of Separation Are Limited by Data Collection and Implementation Challenges* (OIG Report No. AV-2013-046), February 27, 2013. OIG reports and testimonies are available on our Web site at <http://www.oig.dot.gov/>.

<sup>6</sup> *Long Term Success of ATSAP Will Require Improvements in Oversight, Accountability, and Transparency* (OIG Report No. AV-2012-152), July 19, 2012.

<sup>7</sup> Event reports identify actual or potential losses of separation, including operational errors, or other situations that may degrade air traffic safety.

<sup>8</sup> FAA changed how it categorizes event reports in January 2012. However, the committees that review ATSAP reports still do not contact facilities if they believe an event is unknown to management.

- At the time of our review, FAA had not effectively communicated and implemented changes to performance management under ATSAP.
- Event Review Committees (ERC)<sup>9</sup> have accepted reports for ATSAP that do not adhere to ATSAP reporting criteria, and FAA lacks a process to review ERC decisions. For example, ERCs have accepted reports that concern air traffic controller conduct—rather than specific performance issues—such as a controller watching a personal video player while on duty. These types of conduct issues are inappropriate for inclusion in a confidential safety program such as ATSAP, and failure to adhere to the program’s reporting criteria may lead to the incorrect perception that ATSAP is an amnesty program.
- ERCs can refer reports that include conduct issues to FAA’s Professional Standards Program (PSP)<sup>10</sup> for peer counseling. However, the PSP does not require documenting corrective actions for accountability, transparency, and resolution. More importantly, final decisions regarding matters referred to the PSP are made, in many cases, by bargaining unit employees at the facility level rather than FAA management.

### **FAA Is Making Changes to Its Scheduling Practices But Continues To Face Challenges in Mitigating Controller Fatigue**

A series of high-profile incidents in early 2011 involving controllers who were sleeping while on duty sparked public concern about controller fatigue and prompted FAA to institute a series of policy changes. These include placing an additional air traffic controller on the midnight shift at certain facilities and mandating a minimum of 9 hours off between evening and day shifts.

As directed by the FAA Modernization and Reform Act of 2012,<sup>11</sup> we are assessing these new controller scheduling practices with a focus on safety considerations during schedule development, the cost effectiveness of scheduling practices, and the impact of scheduling practices on air traffic controller performance.

### **Sustained Focus on Efforts To Reduce Serious Runway Incursions Is Needed**

Reducing runway incursions—potential ground collisions—is a key performance goal for FAA that requires heightened attention at all levels of the Agency. As we noted in our report to this Committee in July 2010,<sup>12</sup> the number of the most serious runway

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<sup>9</sup> ERCs consist of a member from the Air Traffic Organization, a controller union representative, and a member of FAA’s Air Traffic Safety Oversight Service. ERCs evaluate each report submitted to the program to determine whether it meets the established criteria for inclusion in the database. If so, the ERC accepts the report into ATSAP.

<sup>10</sup> PSP is defined in Article 52 of FAA’s 2009 Collective Bargaining Agreement with the National Air Traffic Controllers Association. It is designed to allow bargaining unit employees to address conduct and/or performance issues of their peers before such issues rise to a level requiring corrective action by the Agency.

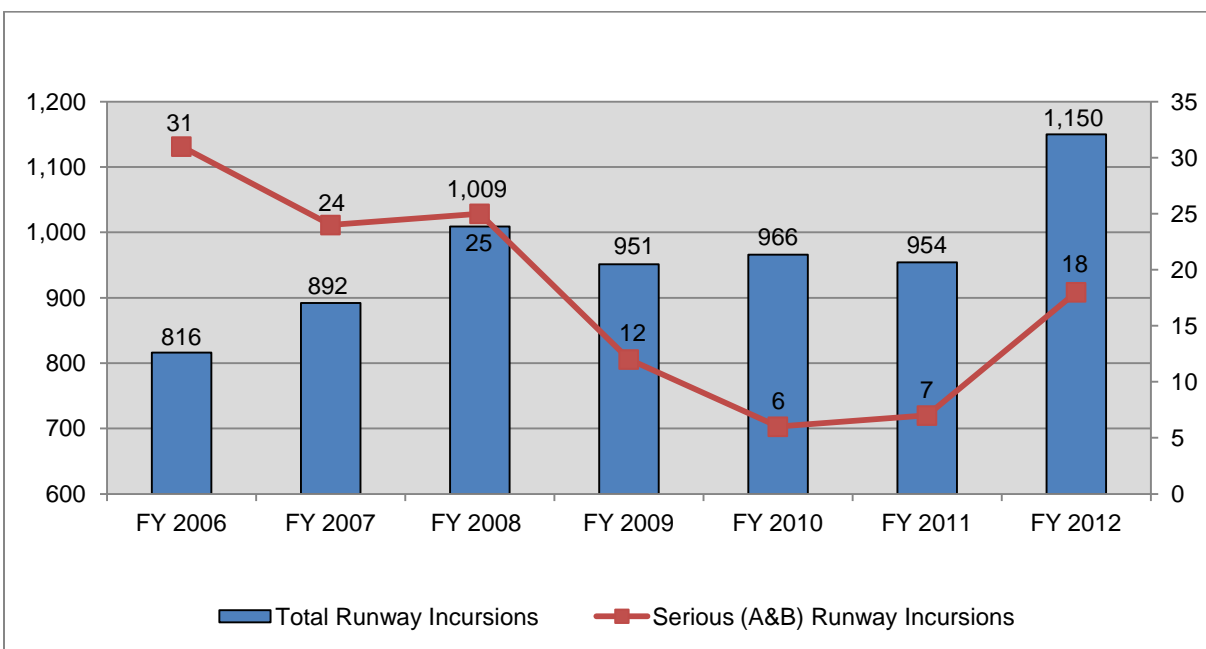
<sup>11</sup> Pub. L. No. 112-95 (2012).

<sup>12</sup> *Review of FAA’s Call to Action Plan for Runway Safety* (OIG Report No. AV-2010-071), July 21, 2010.

incursions—incidents in which a collision was barely avoided—decreased after runway safety initiatives detailed in FAA’s August 2007 Call to Action plan were implemented.<sup>13</sup> However, between fiscal years 2010 and 2012, reported serious runway incursions tripled from 6 in fiscal year 2010 to 18 in fiscal year 2012.

Additionally, the total number of all runway incursions increased 21 percent between fiscal years 2011 and 2012, from 954 to 1,150, and the total number of incidents continues to increase. For the period of October through December 2012, total incursions increased by approximately 20 percent compared to the same period in 2011. (See figure 2.)

**Figure 2. Runway Incursions, Fiscal Year 2006 Through Fiscal Year 2012**



Source: OIG analysis of FAA data.

More concerning is that this increase occurred during a period when total air traffic operations declined by 1 percent (between fiscal years 2011 and 2012). As a result of these concerns, we plan to initiate another review of FAA’s Runway Safety Program next month.

Over the past several years, FAA has worked to deploy technology that could help prevent runway incursions. For example, in fiscal year 2011, FAA deployed the Airport Surface Detection Equipment-Model X (ASDE-X) system at 35 major airports. ASDE-X enhances runway safety by providing detailed information to air traffic controllers regarding aircraft operations on runways and taxiways. However, while ASDE-X is a

<sup>13</sup> Specifically, these incidents declined from 25 reported in fiscal year 2008 to 6 reported in fiscal year 2010.

step in the right direction, it does not provide alerts directly to pilots, which has been a longstanding recommendation by the National Transportation Safety Board (NTSB). To address this shortcoming, FAA is planning to integrate the use of ASDE-X with two other systems—Runway Status Lights (RWSL) and Automatic Dependent Surveillance-Broadcast (ADS-B)—to provide simultaneous alerts to controllers and pilots of potential ground collisions. Progress in achieving these enhancements will be impacted by a number of issues, such as establishing requirements for technical upgrades, testing to verify system integrity, and determining whether the ASDE-X capabilities will meet FAA’s goals of increasing capacity while improving safety. We have initiated an audit into this area to assess FAA’s progress in integrating ASDE-X with other technologies such as RWSL and ADS-B to improve runway safety.

### **FAA Must Step Up Its Efforts To Reduce Wildlife Hazards at or Near Airports**

The threat of wildlife hazards to aviation safety was evident in the January 2009 wildlife strike involving US Airways Flight 1549 shortly after takeoff from LaGuardia Airport, which forced the flight crew to land the airplane in the Hudson River. In addition to creating major safety risks, strikes can cause significant downtime and damage to aircraft—estimated to be over 600,000 hours of aircraft downtime and \$625 million in damages annually. Over the past 2 decades, reported wildlife-aircraft strikes have quadrupled from 1,770 in 1990 to 9,463 in 2012.<sup>14</sup>

While FAA’s Wildlife Hazard Mitigation Program seeks to reduce wildlife hazards, we recently reported that the Agency cannot fully assess how effective its policies and guidance are at reducing the number and severity of wildlife strikes because reporting wildlife strikes is voluntary.<sup>15</sup> A 2009 study commissioned by FAA concluded that only 39 percent of actual strikes were reported. Consequently, it is unclear whether increases in reported strikes are due to increases in actual strikes or increased reporting. Similarly, it is unclear whether any decreases in strike reports are a result of achieving program goals or a lack of industry reporting.

Without full reporting and complete data on wildlife strikes, it is difficult to fully analyze the magnitude of safety issues, the nature of the problems, and the economic cost of wildlife strikes. FAA reported that wildlife strikes are probably one of the most pressing issues facing air traffic in the vicinity of airports and concluded that the lack of good data is one of the biggest challenges that managers at airports face.<sup>16</sup> Accordingly, it is incumbent on FAA to address the gaps in strike data by improving oversight and enforcement of its Wildlife Hazard Mitigation Program requirements. Otherwise, the Agency will not be able to ensure that the \$366 million in increased program spending

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<sup>14</sup> These totals exclude wildlife strike reports from military operations and foreign or unknown states.

<sup>15</sup> *FAA Has Not Effectively Implemented Its Wildlife Hazard Mitigation Program* (OIG Report No. AV-2012-170), August 22, 2012.

<sup>16</sup> FAA Safety Briefing, “‘Accidental’ Meetings Between Airplanes and Wildlife,” November/December 2011.

over the next 20 years will be used effectively to track and analyze trends in wildlife strikes, identify potential new hazards, and mitigate their risk.

### **FAA Faces Challenges With Developing a Comprehensive Safety Data Collection and Analysis System for Proactive Identification of Risk**

To help maintain our Nation's aviation safety record and further reduce the number of aviation accidents, FAA has been moving toward a data-driven approach for airline safety oversight. In 2007, FAA implemented the Aviation Safety Information Analysis and Sharing (ASIAS) system, a tool that collects and analyzes data from multiple databases to proactively identify and address risks that may lead to accidents. ASIAS enables authorized users to obtain data from confidential databases—including voluntary safety programs such as the Flight Operational Quality Assurance (FOQA) program and the Aviation Safety Action Program (ASAP)—as well as from publicly available data sources such as NTSB's Accident and Incident Reports database. Although ASIAS was never intended as a surveillance tool, it can still play a role in air carrier risk identification and mitigation. However, access to the confidential ASIAS data for FAA and industry representatives has been limited due to airline proprietary concerns.

In the Airline Safety and FAA Extension Act of 2010, Congress directed our office to assess FAA's ability to establish a comprehensive information repository that can accommodate multiple data sources and be accessible to FAA aviation safety inspectors and analysts who oversee air carriers. Accordingly, we are currently assessing FAA's progress in implementing ASIAS, its process and plan for allowing system access at both field and headquarters levels, and its use of ASIAS data to assist in commercial air carrier risk identification and mitigation. We expect to issue our report later this year.

### **Introducing UAS Within U.S. Airspace Presents Significant New Challenges in FAA's Safety Oversight**

FAA predicts there will be roughly 10,000 active UAS in the United States in 5 years, with more than \$89 billion in worldwide UAS spending over the next 10 years. However, FAA has approved these operations only on a limited, case-by-case basis, due in part to the safety risks associated with UAS integration into the NAS. While the capabilities of unmanned aircraft have significantly improved, they have a limited ability to detect, sense, and avoid other air traffic. Given the growing interest and potential safety issues associated with UAS flights, Congress recently directed the Secretary of Transportation, in the FAA Modernization and Reform Act of 2012, to develop a comprehensive plan for integrating UAS into the NAS no later than September 30, 2015. At the request of the Chairmen and Ranking Members of this Committee and the House Committee on Transportation and Infrastructure, as well as their Aviation Subcommittees, we are currently assessing FAA's progress on integrating UAS into the NAS. We expect to issue a report later this year.



## **IMPLEMENTING RISK-BASED OVERSIGHT IS CRITICAL TO ENSURE SAFETY IN THE AVIATION INDUSTRY**

To maximize its safety inspector resources, FAA needs to target its oversight of the aviation industry, including repair stations, air carriers, and manufacturers, to address the greatest risks. However, shifting to risk-based oversight of the aviation industry continues to be a challenge for FAA. FAA deployed a new oversight system for repair stations in 2007, but it lacks the data and full implementation needed to be a true risk-based system. FAA is also increasingly delegating certain functions, such as approving new aircraft designs, to aircraft manufacturers and other private companies but has not fully addressed weaknesses in its delegation program. Further, the Agency has not fully implemented a risk-based tool used to identify which aircraft certification projects represent the highest risk.

### **FAA Lacks a Reliable Model for Determining How Many Inspectors It Needs**

To effectively oversee a dynamic aviation industry, it is critical that FAA place its approximately 4,300 safety inspectors where they are most needed. A 2006 National Research Council (NRC) study,<sup>17</sup> conducted at the direction of Congress, found that FAA's methodology for allocating aviation safety inspector resources was ineffective. NRC determined this was partially because FAA's method (1) did not predict the consequences of staffing shortfalls (that is, what inspections are not being accomplished due to staffing); (2) failed to account for some important factors affecting inspector workload, such as designee oversight; and (3) relied on expert judgment rather than validated data to reach conclusions. NRC recommended that FAA develop a new approach, and, in response, FAA introduced a new staffing model in October 2009.

We have evaluated the model as part of an ongoing audit of inspector staffing, as requested by Congress.<sup>18</sup> Thus far, FAA officials are not confident in the accuracy of the model's staffing projections and therefore have not fully relied on the number projected by the model when requesting additional inspectors during the annual budget process. As of January 2013, FAA reported the results of its staffing model six times, with each iteration showing very different nationwide employee shortages (see figure 3).<sup>19</sup>

FAA is working to further refine the model so that it more effectively identifies the number of inspectors needed and where they should be placed to address the greatest safety risks. We expect to issue our report on inspector staffing later this year.

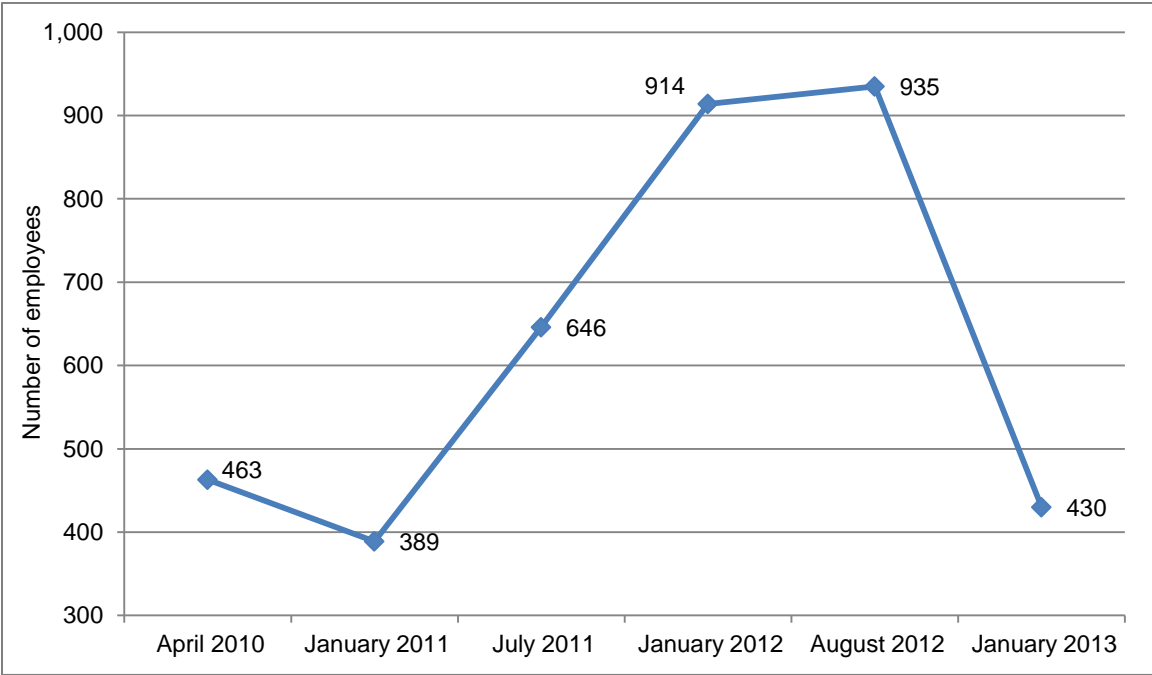
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<sup>17</sup> "Staffing Standards for Aviation Safety Inspectors," September 20, 2006.

<sup>18</sup> Congress directed our office to review inspector and analyst staffing issues in Section 205 of the Airline Safety and FAA Extension Act of 2010, Pub. L. No. 111-216, enacted August 1, 2010.

<sup>19</sup> Based on our analysis of FAA data, these fluctuations appear to be caused by a number of underlying issues such as inaccurate and outdated data.

**Figure 3. FAA’s Model-Projected Safety Employee Shortfalls**



Source: OIG analysis of FAA data.

**Oversight of Repair Stations Remains a Concern**

FAA’s oversight of aircraft repair stations has been a longstanding concern. According to FAA, there are nearly 4,800 FAA-certificated repair stations worldwide that perform maintenance for U.S.-registered aircraft. Since 2003, we have recommended that FAA strengthen its oversight of air carriers’ contracted maintenance providers by developing a comprehensive, standardized approach to repair station oversight and targeting inspector resources based on risk assessments. In response, FAA implemented a new risk-based system in 2007 to target surveillance efforts to facilities based on risk.

However, our review indicates that the system continues to rely on inspectors completing mandatory inspections rather than inspections based on risk. Additionally, some inspectors do not use the risk assessment process at all; those that do are hindered in their ability to assess risk due in part to limitations in data availability and quality. As a result, FAA has been ineffective at conducting risk-based oversight.

FAA’s surveillance at foreign and domestic repair stations also lacks the rigor needed to identify deficiencies and verify they have been addressed. Systemic problems we identified during our 2003 review—such as inadequate mechanic training, outdated tool calibration checks, and inaccurate work order documentation—persist at the repair stations we recently visited. FAA guidance requires inspectors to review these specific areas during repair station inspections, but inspectors overlooked these types of deficiencies. Given U.S. air carriers’ continued reliance on repair stations to perform their aircraft maintenance domestically and abroad, it is imperative that FAA improve its

risk-based system to provide more rigorous oversight of this industry. We plan to issue our report on FAA's oversight of repair stations later this month.

## **Ineffective Oversight of Organizations With Designated Authority Weakens FAA's Role in Aircraft Certification**

Through its Organization Designation Authorization (ODA) program, implemented in 2009, FAA delegates to aircraft manufacturers and other private companies the approval of individuals to certify aircraft or components on FAA's behalf. Once FAA approves the company's selection process,<sup>20</sup> ODA company representatives appoint personnel who perform work on FAA's behalf without FAA concurrence, significantly reducing FAA's role in approving these personnel. While FAA maintains some involvement with the selection process during an ODA holder's first 2 years, it is unclear how FAA is involved beyond that timeframe.

FAA has not yet provided its certification offices with clear, written guidance on how to oversee ODAs' personnel appointments. As a result, certification offices are currently left to define FAA's role in tracking these personnel and to determine how companies select them. For example, only three of the five FAA certification offices we visited consulted an FAA database to pre-screen prospective ODA employees' performance histories, and FAA's certification engineers in the field expressed confusion about whether this check would continue beyond an ODA's first 2 years. With less FAA involvement in the selection process, there is the risk that an ODA company could appoint certification responsibilities to individuals whose qualifications are inadequate or who have a history of poor performance. We identified instances of FAA engineers experiencing pushback from ODA companies when trying to take corrective actions against appointed personnel. This has led to individuals with performance problems continuing to perform important certification functions. In response to our June 2011 report,<sup>21</sup> FAA is developing and implementing policies, procedures, guidance, and training to address the deficiencies we identified with the Agency's oversight of ODA.

In September 2007, as another way to leverage limited FAA engineering resources, FAA implemented use of the Risk-Based Resource Targeting (RBRT) system, which is designed to identify higher risk aircraft certification projects. However, RBRT has not effectively measured risk because it relies primarily on subjective input from FAA certification engineers, does not contain detailed data, and has experienced repeated technical difficulties. For example, engineers reported numerous problems with the system, including a tendency to identify projects as low risk regardless of inputs that suggested higher risk factors, such as a company's lack of experience with the design of aircraft to which they have assigned personnel to certify. In response to our June 2011 report, FAA is developing processes to incrementally improve the RBRT system.

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<sup>20</sup> If ODAs fail to comply with regulations or fail to pass an FAA audit, FAA can remove them from the program.

<sup>21</sup> *FAA Needs To Strengthen Its Risk Assessment and Oversight Approach for Organization Designation Authorization and Risk-Based Resource Targeting Programs* (OIG Report No. AV-2011-136), June 29, 2011.

## **FAA HAS MADE PROGRESS IN IMPLEMENTING MANDATED SAFETY INITIATIVES, BUT SIGNIFICANT CHALLENGES REMAIN**

Since the Airline Safety Act was passed in 2010, FAA has improved pilot rest requirements and made strides in advancing voluntary safety programs. However, challenges remain for enhancing pilot qualification standards and training, establishing mentoring programs, and developing a pilot records database to improve the screening process for pilot applicants.

### **FAA Met Requirements To Address Pilot Fatigue and Improve Participation in Voluntary Safety Programs**

FAA has made important progress in meeting key elements of the Act, including issuing a final rule on pilot rest requirements and increasing air carrier use of voluntary safety programs. We have some concerns regarding pilot commuting, however, as detailed below.

In January 2012, FAA updated its flight and duty time regulations for Part 121<sup>22</sup> air carrier pilots to better ensure pilots are well rested when they fly. This is a significant achievement for the Agency given that these were the first modifications to the regulations since 1985 and that the proposed rule received over 8,000 comments from the aviation industry, mostly opposing the proposed requirements. Under the new regulations, pilots are required to affirmatively state that they are fit to fly and are prohibited from flying during a scheduled duty period when they report fatigue. Other key changes include requiring a 10-hour minimum rest period prior to duty—a 2-hour increase over the previous rule—and 30 consecutive hours free from duty per week—an increase of 25 percent over the previous requirements.

While these changes could substantially enhance safety, the regulations do not address pilot commuting—a factor that may significantly contribute to fatigue, as many pilots in the industry reside hundreds or even thousands of miles from their duty locations. In September 2011, we recommended that FAA collect and analyze information on pilot domicile and commuting to better target solutions to reduce pilot fatigue.<sup>23</sup> The Agency agreed to complete by February 2013 a “scan of available data” on pilot commuting and determine whether additional data could offer significant safety benefits. However, FAA recently updated its response stating that it had determined that collecting and analyzing data on pilot commuting was not warranted because pilots have an obligation to be fit for duty. Despite this stance, FAA indicated that our recommendation has now been substantially addressed. The Agency also cited a September 2012 study by its Civil Aerospace Medical Institute regarding flight attendant commuting that found “no significant relationship between commute times and flight attendant performance.” While

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<sup>22</sup> 14 CFR Part 121, Operating Requirements: Domestic, Flag, and Supplemental Operations.

<sup>23</sup> *FAA and Industry Are Taking Action To Address Pilot Fatigue, but More Information on Pilot Commuting Is Needed* (OIG Report No. AV-2011-176), September 2011.

we are currently evaluating FAA's response, we remain concerned that the Agency is not adequately addressing pilot commuting.

In addition to its rule on pilot fatigue, FAA has made commendable progress in advancing voluntary safety programs at air carriers, another key component of the Act. For example, as required by the Act, FAA provided Congress with a report<sup>24</sup> on air carrier use of three voluntary safety programs that the Agency oversees. Data gathered through these voluntary programs can be used to identify the trends and patterns that represent safety risks:

- **Aviation Safety Action Program (ASAP)**—A joint FAA/industry program that allows aviation employees to self-report safety violations to air carriers and FAA without fear of reprisal through legal or disciplinary actions.
- **Flight Operational Quality Assurance (FOQA)**—A program for the routine collection and analysis of digital flight data generated during aircraft operations.
- **Advanced Qualification Program (AQP)**—A voluntary alternative to traditional pilot training regulations that replaces programmed hours with proficiency-based training, and incorporates data-driven processes enabling air carriers to refine training based on identified individual needs.

As of January 2012, FAA data showed that 70 percent<sup>25</sup> of Part 121 air carriers participated in at least one voluntary safety program and just under half of those carriers used more than one. The highest concentration of new growth for these air carriers has been with the ASAP and FOQA programs.

However, work remains to implement these programs at smaller carriers. While all carriers with more than 50 aircraft in their fleet have implemented ASAP, only 41 percent of carriers with 15 or fewer aircraft have adopted the system (see table 1). Similarly, just 12 percent of these small carriers have FOQA, and only 7 percent have advanced qualification programs for pilot training.

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<sup>24</sup> Voluntary Safety Programs, Response to P.L. 111-216, Sec. 213, January 28, 2011.

<sup>25</sup> FAA recently reported that air carrier participation in voluntary safety programs continues to increase.

**Table 1. Air Carrier Voluntary Safety Program Participation**

Program	Number of Carriers Participating	Large Carriers (more than 50 aircraft)	Medium Carriers (16 to 50 aircraft)	Small Carriers (15 or fewer aircraft)
ASAP	60 of 88 (68%)	24 of 24 (100%)	19 of 23 (83%)	17 of 41 (41%)
FOQA	38 of 88 (43%)	22 of 24 (92%)	11 of 23 (48%)	5 of 41 (12%)
AQP	19 of 88 (22%)	13 of 24 (54%)	3 of 23 (13%)	3 of 41 (7%)

Source: OIG analysis of FAA data as of January 2012.

### **Challenges Remain in Meeting Key Pilot-Related Provisions and Ensuring Air Carriers Meet Safety Standards**

Despite the important progress FAA has made in implementing the Act’s requirements, the Agency has encountered delays in issuing key rules impacting pilots—specifically those addressing new screening and qualification enhancements, air carrier training standards, and mentoring and leadership programs. The Agency also faces challenges in establishing a new centralized, electronic pilot records database to provide air carriers with better background information on pilots they intend to hire. Finally, FAA will need to address concerns regarding establishing safety management systems and information sharing and mentoring between code share partners.

**Pilot Qualifications.** FAA is behind schedule in meeting the Act’s requirement to substantially raise airline pilot qualifications. FAA expects to issue a final rule by August 2013—1 year after the Act’s deadline. As mandated by the Act, FAA’s proposed rule (issued in February 2012) would require all Part 121 pilots to hold an Airline Transport Pilot (ATP) certificate,<sup>26</sup> which is currently required only for Pilots-in-Command. First Officers would need 1,500 hours of flight time to obtain an ATP certificate—six times the current minimum of 250 hours needed for a commercial pilot’s certificate. Although FAA’s proposed rule would provide some flexibility in meeting these requirements for pilots with relevant degrees or military flight experience, air carrier representatives remain opposed to the rule because they feel a pilot’s quality and type of flying experience should be weighted more heavily than the number of flight hours.

FAA’s delayed rulemaking is a particular concern because, under the terms of the Act, the requirement that all pilots possess ATP certificates will automatically take effect if FAA cannot issue a final rule by August 2013. If this happens, air carriers would not be allowed the flexibility provided in FAA’s proposed rule. As a result, air carriers may not

<sup>26</sup> An Airline Transport Pilot (ATP) Certificate is the highest level of pilot certification. Pilots certified as ATP are authorized to act as pilot-in-command of an aircraft in commercial airline service. Additional eligibility requirements are contained in 14 CFR 61.153.

have adequate time to make necessary adjustments to their pilot training and qualification programs to meet the new requirements by the Act's deadline.

**Crew Training.** FAA is more than 18 months overdue on issuing a final rule revising pilot training requirements, due in part to significant industry opposition to the rule. FAA's current proposed rule (issued in May 2011) is an important safety initiative that will require pilot training programs to incorporate flight simulators and enhance pilots' abilities to work together during emergencies, as well as how to recognize and recover from stalls.

With advancements in pilot training on the horizon, it is important that FAA enhance its oversight practices. For example, under the new rule, carriers will be required to provide remedial training for pilots with performance deficiencies. However, it will be difficult for FAA to gauge the effectiveness of this training unless it corrects weaknesses we reported in December 2011.<sup>27</sup> Specifically, we reported that FAA was not tracking poorly performing pilots due to inadequate guidance for its inspectors on how to gather data on pilot performance. Currently, FAA guidance requires inspectors to compare pilot proficiency checks that they have performed against those conducted by the carriers' check airmen.<sup>28</sup> However, we questioned the viability of this requirement since nearly all pilot proficiency checks are conducted by check airmen, not FAA inspectors. As a result, FAA inspectors may not have sufficient data to make a meaningful comparison.

**Pilot Mentoring.** FAA is also more than 20 months overdue in meeting a mandated timeline to issue a proposed rule requiring air carriers to establish pilot mentoring, leadership, and professional development committees to improve pilot performance. The delay is due in part to setbacks in developing an appropriate balance between the costs and benefits of these programs.

While FAA intends to issue a proposed rule that would reinforce safe flying practices, air carriers are reluctant to allocate resources to implement these new safety programs without a final rule and FAA guidance. As we reported in January 2013,<sup>29</sup> seven of nine carriers we visited did not have formal mentoring programs, and none had professional development programs for their pilots.

**Pilot Records Database.** FAA achieved an early milestone to begin developing the electronic database for pilot screening by October 2010. Additionally, in July 2011, an advisory committee provided FAA with recommendations on the database's design and functionality. However, the Act did not establish a milestone for completion and FAA

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<sup>27</sup> *New Approaches Are Needed To Strengthen FAA Oversight of Air Carrier Training Programs and Pilot Performance* (OIG Report No. AV-2012-027), December 20, 2011.

<sup>28</sup> Check airmen are pilots employed by air carriers who evaluate a pilot's proficiency during examinations.

<sup>29</sup> *FAA and Industry Are Advancing the Airline Safety Act, But Challenges Remain to Achieve Its Full Measure* (OIG Report No. AV-2013-037), January 31, 2013.

has yet to make long-term implementation decisions. To achieve the goal of enhancing the screening process of newly hired pilots, FAA must overcome three key challenges:

- First, FAA must determine the level of detail that should be captured from air carrier pilot training records, such as recurrent flight training data. The Act stipulates that comments and evaluations made by check airmen be included in the database; however, industry is highly protective of these data and opposes their inclusion. FAA must also address how to include historical air carrier pilot training records into its new system.
- Second, the Agency will need to develop a strategy to transition to the new database while ensuring air carriers receive all available data in the interim. Since database implementation is years away, we are concerned whether air carriers can currently obtain all relevant information on pilots before they are hired.
- Finally, FAA identified multiple challenges for accessing records from the National Driver Register (NDR)<sup>30</sup> and incorporating them into the database. For example, FAA must decide how to ensure data reliability of pilot records and resolve conflicting data retention policies for the database versus NDR data sources.

**Safety Management Systems.** FAA did not meet an August 2012 deadline for issuing a final rule to require that all Part 121 air carriers implement Safety Management Systems (SMS). SMS, which is currently voluntary, provides air carriers with a comprehensive process for managing safety risks and integrating safety activities into normal, day-to-day operations. Specifically, SMS provides operators with business processes and management tools to examine data from everyday operations, isolate trends that may be precursors to incidents and accidents, and develop and carry out appropriate risk mitigation strategies.

Since 2007, FAA has taken steps to assist air carriers in developing these systems through a pilot program designed to promote voluntary air carrier adoption of SMS and develop implementation strategies. As of January 2013, 95 percent of all Part 121 air carriers (80 of 84) are participating in the pilot program.

When fully implemented across all carriers, SMS has the potential to significantly advance safety. However, there is industry concern that the SMS rule will not be scalable for air carriers of varying size and operations, making it more costly and difficult for smaller carriers to integrate into their operations. In addition, FAA's proposed rule (issued in November 2010) does not address concerns from air carriers and NTSB about public disclosure of SMS-collected data. Most of these concerns focus on whether the data can be used in litigation. NTSB is also concerned that air carrier employees may be discouraged from providing important safety information due to a lack of SMS data protection.

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<sup>30</sup> NDR is a central information system that allows States to electronically exchange information on licensed drivers through a computerized network.



**Code Sharing.** The 2009 Colgan accident raised important questions about code sharing—when a mainline air carrier contracts with a smaller regional carrier to provide flights to its hub airports—including how closely the mainline carriers monitor the operations of their regional counterparts. FAA’s 2009 Call to Action plan for airline safety encouraged mainline and regional carriers to collaborate on code share safety programs and mentoring. Yet, FAA does not have procedures to advance the Agency’s commitment to ensure an equivalent level of safety between mainline air carriers and their code share partners.

In February 2013, we reported that while FAA sponsors biannual information sharing events across the industry, it has not taken steps to encourage mainline carriers to share safety information and best practices with their code share partners.<sup>31</sup> As a result, some safety programs developed internally between code sharing partners are more robust than others. For example, one major carrier meets with its code share partners on a monthly basis to discuss safety practices, while other carriers we reviewed only met quarterly with their code share partners. Further, because FAA does not review domestic code share arrangements, the Agency has not assessed whether certain aspects of these agreements, such as financial incentives based on performance, could have unintended safety consequences.

## **CONCLUSION**

With an increasingly complex air system—one that relies on rapidly evolving technologies, specialized services, and expanding partnerships—maintaining a safe and viable NAS is a challenging mission. While FAA has taken noteworthy action to address safety concerns raised by Congress, our office, NTSB, and others, we have noted that further opportunities remain to mitigate safety risks. These include improving collection and analysis of air traffic safety data, establishing an effective risk-based approach for overseeing repair stations and manufacturers, and fully addressing provisions of the Airline Safety and FAA Extension Act of 2010 and the FAA Modernization and Reform Act of 2012. We will continue our work with FAA and the Department to ensure intended air safety improvements are realized.

This concludes my statement. I would be happy to address any questions from the Chairman or Members of the Committee at this time.

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<sup>31</sup> *Growth of Code Sharing Warrants Increased Attention* (OIG Report No. AV-2013-045), February 14, 2013.

## EXHIBIT. STATUS OF KEY AIRLINE SAFETY ACT REQUIREMENTS

Sect.	Initiative	Milestone	Deadline	Milestone Status
202	NTSB Recommendations Report	Report	Annual	Met, On-Target
203	FAA Pilot Records Database	Database Development	10/30/2010	Met
		Report	02/01/2012	Completed Late (02/24/2012)
204	Air Carrier Safety & Pilot Training ARC	ARC Report	07/31/2011	Met
		ARC Report	07/31/2012	Met
205	FAA Inspector Staffing	Start OIG Review	05/01/2011	Met
206	Mentoring, Development, and Leadership	NPRM	08/01/2011	Overdue
		Final Rule	08/01/2013	To Be Determined
207	Crew Pairing and Crew Resource Management	Study	08/01/2011	Completed Late (08/26/2011)
208	NTSB Training Recommendations	ARC Formation	11/29/2010	Met
		NPRM	08/01/2011	Met
		ARC report	11/30/2011	Completed Late (03/07/2012)
		Final Rule	08/01/2013	To Be Determined
209	FAA Rulemaking on Training	ARC Formation	09/30/2010	Completed Late (11/16/2010)
		ARC Report	08/01/2011	Completed Late (09/23/2011)
		Final Rule	10/01/2011	Overdue
210	Code Share Ticket Disclosure	Amend 49 U.S.C. § 41712	N/A	Completed
211	FAA Safety Inspections	Perform one per year	Annual	Met, On-Target
212	Fatigue and Commuting	NPRM	02/01/2011	Met
		Final Rule	08/01/2011	Completed Late (01/04/2012)
		Risk Management Plans	11/01/2010	Met
		Start Study	09/30/2010	Met
		Preliminary Findings	01/30/2011	Met
		Report	06/30/2011	Met
213	Voluntary Safety Programs	Report	01/28/2011	Completed Late (03/16/2011)
214	ASAP and FOQA Implementation	Plans Issued	01/28/2011	Completed Late (04/14/2011)
		Plans Implemented	08/01/2011	FOQA Portion Overdue
215	Safety Management Systems	NPRM	11/01/2010	Met
		Final Rule	08/01/2012	Overdue
216	Screening & Qualifications	NPRM	01/28/2011	Completed Late (02/29/2012)
		Final Rule	08/01/2012	Overdue
		ATP	08/01/2013	To Be Determined
217	ATP Certification	Final Rule	08/01/2013	To Be Determined

Source: OIG analysis of FAA-reported data.